1: Rosen E-5 (1901-1902) 1924 SK6 Choroti SK6

361 (material for roofing huts), the Indians are apt to build their villages in
824 the proximity of some grove, or forest, of palms (›palmar‹). As a case in instance, the Choroti village at Tatarenda was situated quite close to a palm grove, and not very far from a largish palm forest. It is of im-
[262] portance that algaroba trees should be growing in the neighbourhood, as the fruit of this tree plays a prominent part in the food arrangements of these Indians.

342 The huts are of a very primitive character, and are built in the following manner; With a digging-stick (fig. 27) of hard, heavy wood, a succession of
[142 holes is dug, or jabbed, in the ground, so as to
291 form a circle with a diameter of 2 metres or upwards.
301 In each of these holes is planted an unlopped, bent-
412] grown branch, thick end downwards, so that the tips of the branch point towards the centre of the circle. By this means a cupola-shaped frame is formed (fig. 26). This frame is covered with a thick layer of palm leaves and grass (figs. 16, 25), unless palm leaves are difficult to obtain, when the hut will be covered with grass only, although huts thatched in this way have less rain resistance. But even the most carefully built Choroti huts are, however, poor enough dwellings which, in any heavy downpour of rain, are unable to keep those inside them from a wetting.

Fig. 18. A man holding a pestle in his hands. Choroti. Gran Chaco. Bolivia. Photo. E. v. R.

The huts have one, or even two, entrances, about one metre in height (figs. 16, 25), but huts of the largest size are sometimes provided with several entrances. A sort of porch, constructed of branches and grass, may occasionally be built out from the entrance. When several huts are close together, they may not unfrequently be connected with each other by means of covered passages, or tunnels, built similarly to the huts.

352 The latter do not contain many utensils. Ranged along the wall, bowls
415 made of gourd shell, a few clay vessels and a wooden mortar are gene-
824 rally seen. In prettily knitted net bags of spun caraguatá fibre,[1] the Choroti keep all manner of small articles, such as mussel-shell spoons,

[1] Caraguatá, or chahuar (chaguar), Bromelia serra, is, as I have already pointed out, especially common in the Chaco.

wooden sticks for fire-drilling, toilet articles, magic rattles, etc.

1: Rosen E-5 (1901-1902) 1924 SK6 Choroti SK6

Fig. 27. Wooden digging-stick (wood of Bulnesia sarmienti). The handle and the spade-like point are flat, the rest, of round section. Choroti, Gran Chaco, Bolivia. Ca. 1/15th. Riksm. no. 3 84.

a secondary one.[1] In Central Africa I have seen Wemba and Bisa men construct food-storing racks for smoking food, or drying it by fire. These racks are built on exactly the same plan as the cooking-sheds of the Choroti, although lower than the latter, and not covered with grass. That also the Indians of South America made use of drying or roasting racks, is evident from fig. 29, provided that this picture, reproduced from an account of travel in the 16th century,[2] actually is a faithful representation of an Indian roasting-rack.

The roasting-rack, such as it is reproduced above, may conceivably be a development of the food-storing rack discussed by me in chapter VII (pp. 198, 199), and in the following way: Those usually fairly tall racks that are built for the protection of food against damage from wild or domestic animals, are, as a rule, particularly well adapted for drying fish, etc. When the weather is unfavourable to sun-drying, the idea would present itself of assisting the preserving process by making a fire under the rack, by means of which the food would dry more quickly, at the same time that, through the action of the smoke, it would keep longer from decomposition. By lessening the height of the rack, in the way shown in fig. 29, the effect of the fire would be increased so much that the food would quickly be cooked, and ready for immediate consumption.

Fig. 28. Frame of cooking-shed; also used as a food rack. Choroti. Gran Chaco. Bolivia. From Erland Nordenskiöld.

When the Choroti quit a dwelling-site in order to build their village elsewhere, they often burn their old

[1] Cfr. my theory as to the origin of pile-building construction, pp. 193–199.
[2] Schmidel (I), p. 29.

1: Rosen E-5 (1901-1902) 1924 SK6 Choroti SK6

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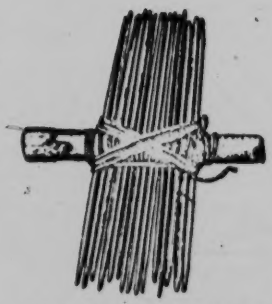

Fig. 85. Split-cane comb. Choroti. Gran Chaco. Bolivia. 2/3. Riksm. 03. 3. 74.

Fig. 86. Wooden comb, carved in one piece. Choroti. Gran Chaco. Bolivia. 2/3. Riksm. 03. 3. 70.

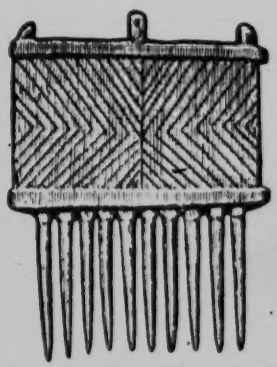

Fig. 87. Wooden comb, carved in one piece; the handle carved on both sides into angular ornament. Choroti. (This comb may possibly have been made among the Chiriguano.) Gran Chaco. Bolivia. 2/3. Riksm. 10. 3. 38.

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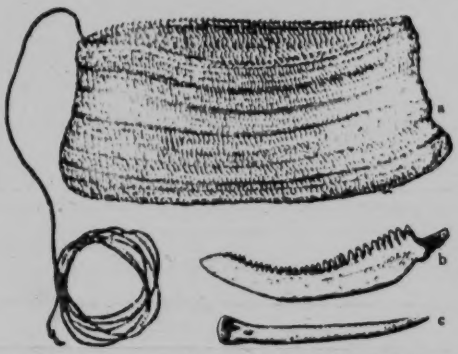

Fig. 88. Miniature bag (a) of undyed (greyish-white), brown, yellow, and black caraguatá fibre. When the author obtained the bag, it contained a stamp for face-painting (b) and a small bone awl for tattooing and blood-letting (c). Choroti. Gran Chaco. Bolivia. 2/3. Riksm. 03. 3. 101.

older cultural element. The split-cane comb in fig. 85 consists of a piece of cane, about 7.2 cm long, into which a split has been made from one end, so that only 2 cm of the other end of the cane are left intact. The insides of the two legs forming this crotch have been pared down so that the space between the legs of the crotch equals the thickness of the comb teeth at their middle, i. e., in this case about 4 mm. In the fork of this crotch the teeth, 1 to 2 mm thick, have been placed and secured by tying, with their flat sides together. This class of Choroti combs are generally of a construction differing somewhat from the one described, in that the cane has not been split from one of the ends in order to afford room for the teeth, but, instead, there is usually in the middle of it a recess, into which the teeth are fixed in the way I have described.

1: Rosen E-5 (1901-1902) 1924 SK6 Choroti SK6

Fig. 110. War club, of hard, heavy wood (palo mataco. Choroti, Gran Chaco. Bolivia. 1/4 Riksm. 10. 3. 92.

As war weapons the Choroti use, beside bows and arrows, short, round-handled clubs of some very hard and heavy wood, usually palo mataco. The head and handle of the clubs is always carved in one piece (fig. 110). With these seemingly not very formidable weapons, the Indians are able — on account of the great hardness, heaviness and strength of the club material — to deal terrible blows, and they know how to use them with great skill.

In fighting their rivals, the Choroti women sometimes use knuckle-dusters of tapir hide or wood,[1] the latter being of a type identical with specimens found in ancient Indian graves in the mountain region to the west.[2] The Choroti use also bone awls as daggers. A bone awl especially suitable for a weapon is reproduced in fig. 111. It consists of the lower part of the leg-bone of a small deer; the foot serves for a handle, and the hoofs forms an excellent pommel. The weapon fits the hand very well when the thumb rests against the sole of the hoof.

For cutting up game, the Choroti use knives made of sharp-edged cane splinters. Knives and poniards, of cane, have been very extensively used in South America. Even among tribes possessing knives of stone or metal, to this day knives of cane are being used in certain ritual ceremonies. Thus Bolinder, for example, mentions that among the Ijca Indians of Northern Columbia, in childbirth the navel is cut with a cane splinter.[3]

Fig. 111. Awl, made out of a shank bone of a small deer. Bone awls are sometimes used as poniards. Choroti, Gran Chaco. Bolivia. 2/3. Riksm. 93. 3. 181.

The Choroti do not, however, possess only weapons of offence, but also weapons of defence. When on the subject on dress, I have described the mail shirts, made of closely woven, thick

[1] Nordenskiöld (11), p. 35 and 56; also (13), p. 81.
[2] von Rosen (1), pp. 203 and 204.
[3] Bolinder (1), pp. 240 and 243.

1: Rosen E-5 (1901-1902) 1924 SK6 Choroti SK6

skinning or gutting, and are usually eaten with entrails, excrement and all. When the Choroti eat the entrails of larger animals, they do not first rinse them out, but are, at best, content with squeezing out the contents. Nordenskiöld has seen them eating intestinal contents as spinach together with the meat.[1] Fish is grilled, either by being laid on glowing embers, or tied between two sticks stuck into the ground by the fireplace.

As servers for food are used bowls of clay, wood, or calabash shell, or merely large, fresh leaves.

In foregoing chapters I have given the names of such plants, wild as well as cultivated, as are of importance in the food supply of the Choroti. Vegetables are eaten raw, boiled, roasted or dried. The Choroti, like other Chaco tribes, eat the fruits of the algaroba, and other similar fruits, in the following, rather original way. The raw fruits are put into a large wooden mortar (fig. 122), and there pounded up. The pulp is put into a calabash bowl, where it is stirred up with water, and the dish is then ready for eating. Those who are about to partake, squat down around the bowl, and each individual helps himself with his bare hand to the pulpy mass, which he puts into his mouth, chews and sucks, whereupon he spits his mouthful of mush back into the bowl. Another mouthful is taken, and in due course spat out, and so on. This is repeated by all the participants of the meal until all the sweet and nutritious components of the mess have been used up. What a bowl of »fruit cheese» is like, after half a-dozen Indians have been eating and spitting for a while, the reader may possibly picture to himself, by the aid of his imagination.

Fig. 122. Mortar and pestle of hard wood, the latter consisting of palo santo. Choroti. Gran Chaco. Bolivia. 1/6. Riksm. 03. 3. 135 and 03. 3. 137.

In another work of mine I have said that the Choroti eat the *fruits*

[1] Nordenskiöld (18), p. 53.

[2] *Cf. Kosm.* II.

283 Chaco, a circumstance I have pointed out in the foregoing. At its thickest part, the diameter of the spindle should be somewhat larger than the diameter of the hole through the whorl. The thinner end of the spindle is passed through this hole, and the whorl is then slid downwards until it gets fixed on account of the thickness of the spindle (see fig. 143). If the hole has happened to have been made too large, so that the whorl would slip off, the thickness of the spindle immediately below the whorl is increased by the application of a heavily waxed binding (see fig. 142).

Fig. 144. Knife-like weaving implement (batten) of hard wood Choroti. Gran Chaco. Bolivia. $^{6}/_{9}$. Riksm. 10. 3. 91.

286 Personally I have not seen the Choroti do any weaving, but from this tribe Nordenskiöld has described a very primitive method of fillet weaving: »For a loom, the woman used her own body; the fillet she was weaving was fastened to her big toe, and her hand she used as a batten. In this way she was weaving the fillet without using any other implement than her extremities.»[1]

For all that, the Chorotis do possess weaving implements, which, among other things, is evident from the weaving batten reproduced in fig. 144. It is carved in one piece out of some hard, heavy wood. The transverse section of the handle is oval, and the blade has two rounded edges.

283 The Choroti make excellent ropes of bast (fig. 145), by twining. One such rope, which I bartered off them, is 11.74 metres in length. At one end of it there is a running noose, and it has probably been used as a lasso.

412 439 At the time when I visited the Chaco, iron was still of such rarity that it was but seldom I saw an iron knife among the Choroti. We had brought with us, as articles for bartering, long, Argentine knives, and with them the Indians were highly delighted. These knives were not used by the Choroti for carving wood with, but principally as carving instruments in cutting up meat.

412 The Choroti knife, which is reproduced in fig. 146, is a very primitive tool, with a one-edged blade, about 1.5 mm thick, of untempered sheet-iron. The upper part of the blade is wedged into a partly cleft wooden handle, which is covered

[1] Nordenskiöld (13), p. 111.

a [should be Choroti. - Analyst]

1: Rosen E-5 (1901-1902) 1924 SK6 Choroti SK6

with the tail skin of a lizard. The blade and handle form an obtuse angle, and the edge has been ground on the outer side of the angle. This peculiar shape of knife corresponds to the shape of wooden knives that have been found in ancient Indian graves on Puna de Jujuy and in Quebrada del Toro.[1]

Fig. 145. Rope, of bast. Choroti. Gran Chaco. Bolivia. 1/1. Riksm. 03. 3. 244.

Fig. 146. Knife with one-edged blade of soft iron, and handle of wood, covered with lizard skin. Choroti. Gran Chaco. Bolivia. 1/2. Riksm. 03. 3. 189.

Fig. 147. Awl, consisting of the right ulna of some large feline, probably puma. Choroti. Gran Chaco. Bolivia. 1/1. Riksm. 03. 3. 183.

The Choroti also use wooden knives, resembling broad-bladed chisels.[2] Knives of this shape, which the Choroti now also make of iron, are principally used for cutting up fish, or for opening and dividing pumpkins, water melons, and other kinds of fruit. For cutting up meat, sharp-edged cane splinters, or — and nowadays most generally — iron knives, are used. As I have previously mentioned, the Choroti also use the sharp-toothed jawbones of the palometa fish (Serrosalmo sp.), as knives for hair-cutting, fig. 84.

[1] See, for example, von Rosen (10), figs. 59, 127—131.

[2] Nordenskiöld (11), figs. 12 and 13.

1: Rosen E-5 (1901-1902) 1924 SK6 Choroti SK6 Mataco SI7

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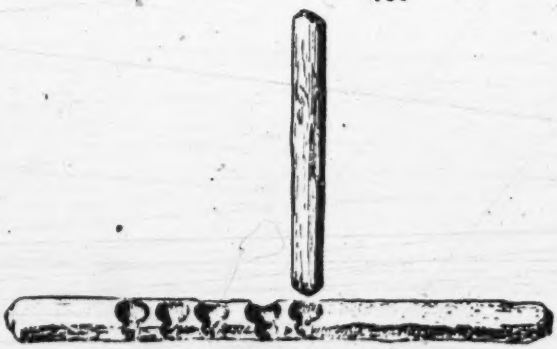

Fig. 148. Fire-drilling implement, consisting of two wooden sticks. Choroti. Gran Chaco. Bolivia. 2/3. Riksm. 03. 3. 193.

For scraping and polishing wooden objects, pieces of mussel-shell are used. Formerly, when the Choroti could not obtain iron, all woodwork was produced exclusively by means of fire and mussel-shells. In shaping a piece of wood, the parts that were to come away were burnt in the fire, and the charred parts then scraped off with a sharp-edged piece of mussel-shell.

Nordenskiöld mentions that the Choroti, in the same way as other Chaco tribes, use saws made of hard wood with which they, among other things, saw off the stem and leaves of the, to the Indians so important, caraguatá plant,[1] after having grubbed it up with a fork-like digging stick.

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Fig. 149. Stems of a liana (Asclepiadaceae), which forms the material of which fire-drilling implements of the Choroti generally are made. Gran Chaco. Bolivia. 1/1. Riksm. 03. 3. 196.

C [412 32] C 372 [415 23] M [372 415 23]

Awls for working purposes are made of bone (fig. 147). Bone awls are also used for tattooing (see p. 75, 78), magical blood-letting (see pp. 63 and 64), and as weapons of offence (see p. 101).

Like other Chaco tribes, the Choroti produce fire by drilling. Their fire-kindling implement consists of two round-sectioned, dry sticks of wood (fig 148), usually obtained from a species of liana (of the Asclepiadaceae), fig. 149. One stick (the female one), which is thicker, and usually longer, than the other one (the male stick), has one or more bowl-shaped indentations, at

Fig. 150. Tail of armadillo, used as a tinder box. Mataco. Gran Chaco. Argentina. Exactly similar tinder boxes are used by the Choroti. 2/3. Riksm. 03. 3. 572.

[1] Nordenskiold (11), pp. 65 and 66, also (13), pp. 110 and 111.

1: Rosen E-5 (1901-1902) 1924 SK6 Choroti SK6

826 that the hair in certain magic rites could represent the person from whom it had been taken.[1] We find a similar belief existent among the Choroti who, because of it, carefully burn the hairs that they cut off or pluck out. They also believe that the souls of the dead, as well as evil spirits, are [764] capable of working harm on the living by means of the hair, and on this belief is based the custom of the Choroti women of cutting off this adornment on the death of their husbands.[2] Similarly, the practice universally prevalent among the Choroti of plucking out eyebrows, eyelashes and other hairs of the face, the hairs of the armpits and about the genital parts, is probably due to this belief.[3] When a Choroti Indian takes a scalp, or fixes the scalp lock of a slain foe under his frontlet (see pp. 60, 61 and 103), it is probable that he considers that he has not only succeeded in obtaining a material trophy, but that the possession of the scalp or scalp lock to some certain extent confers upon him power over the spirit of his fallen adversary.[4]

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Fig. 185. Bone awl for blood-letting. Probably made out of an ulna of a puma. The awl is wrapped round with a red woollen-fillet, to prevent it from penetrating too deeply into the muscles. Choroti. Gran Chaco. Bolivia. 1/1. Kksm. 03. 3. 82.

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In the foregoing (pp. 63 and 75) I have mentioned that the Choroti on certain occasions perform a kind of magic blood-letting by means of bone awls. I have also given an account of the Indian conception of the effects of this kind of blood-letting (see pp. 63 and 64). I will now add that I think it probable that the *material* of which the awl consists also plays a certain part.

Fig. 186. Bone awl for blood-letting; also used for tattooing. Probably made from an ulna of a raptorial bird. The awl is wrapped round with grey and red woollen-yarn (the latter nethermost) so as not to enter too deeply into the flesh. Choroti. Gran Chaco. Bolivia. 1/1. Riksm. 03. 3. 83.

Nordenskiöld has observed that the Ashluslay, when they are out looking for nests of wild bees, prick themselves above the eyes with a

[1] Even as early as in the Werrend law, mention is made of hair being used in witchcraft.
[2] See page 182.
[3] Karsten (4), p. 10.
[4] Cf. Karsten (4), p. 60.

1: Rosen E-5 (1901-1902) 1924 SK6 Choroti SK6

wooden awl, so that blood flows.[1] In reply to my question, Nordenskiöld has been kind enough to tell me that he never saw the Indians using awls of any other material than wood for this purpose. On the other hand, both he and I, and other Chaco students, have seen Choroti pricking themselves with bone awls (figs. 185 and 186) when feeling tired. In order to ascertain whether the Indians in making their bone awls gave preference to any particular bone of any particular animal, I asked Professor Lönnberg to try and identify the animals from which the material had been taken for all the bone awls in my collection. Professor Lönnberg very kindly acceded to my request, and here below I give the result of his investigation.[2]

Awl No. 03. 3. 183. Upper part of right ulna of a large feline animal, probably a female puma.
» » 03. 3. 82. » » » left » » » feline animal, probably a young puma.
» » 03. 3. 182. » » » » » » » » (somewhat smaller than the foregoing).
» » 03. 3. 84. Lower part of canon bone of small ruminant (deer calf?).
» » 03. 3. 184. » » » » » » » »
» » 03. 3. 185. » » » » » » » »
» » 03. 3. 83. Probably a fragment of ulna of a bird (raptorial?)
» » 03. 3. 186. » » » » » » » » of a species somewhat smaller than the foregoing.

The remainder of the bone awls that were submitted by me to Professor Lönnberg consisted of fragments, impossible of determination.

Unquestionably, it must strike one as peculiar that out of eight determinable pieces of bone, three of them probably consist of ulnæ of such a ferocious animal as the puma (the killing of which to the Indians is a matter of deadly peril). Another thing, which is in my opinion noteworthy, is that two of the awls probably consist of ulnæ of raptorial birds, and that the three remaining ones all consist of canon bones of some species of small ruminant. In fig. 81 I have reproduced an awl consisting of the jawbone of a Siluroid: this implement, however, at the same time being a kind of stamp for applying red paint to the face. Whilst paying a visit to the Gothenburg Museum, I was, by the courtesy of the Keeper of Ethnography, Baron Nordenskiöld, given the opportunity of going through the collection of bone awls that he has acquired from Indians of the Chaco, which collection now forms part of the Museum. On examining

[1] Nordenskiöld (18), p. 49.

[2] In accordance with letters dated July 2 and 18, respectively. Rockefeller collection of Manuscripts, Volume 1921, letter 1.

412 this material it at once became apparent to me that seven of these awls were similar to those that Professor Lönnberg had identified as being from ulnæ of some large species of feline animal. I obtained permission to borrow these seven awls[1] with a view of ascertaining, if possible, through Professor Lönnberg, from what animals they were derived. After Professor Lönnberg had examined these objects too, I got from him the following report: »From all I can see, the implements herewith returned to you are also manufactured out of ulnæ of puma.»[2]

757 412 In the men's satchels, or bags, that I have acquired from the Choroti, I have as a rule found *several* bone awls, together with, now and again, a wooden awl. This observation of mine is not to be explained away by my having happened to examine Indian carrying-bags which by mere chance contained a number of bone awls, because Nordenskiöld, who lived among Chaco Indians for a much longer period than I did, noticed exactly the same thing. He writes: — »In *every* Choroti or Ashluslay Indian's carrying bag one finds *quite a number* of bone awls, with which he pricks himself when feeling fatigued.»[3] If it were only a question of puncturing the skin so as to make the blood flow, it would of course be sufficient to possess only one bone awl. As we know, blood-letting is resorted to by the Indians of the Chaco for the attainment of various ends. As has been said; when wishing to locate nests of wild bees, they always use a wooden awl. Can it possibly be that the material, of which this particular kind of awl has been made, is taken from some kind of tree especially favoured by the bees in their nest-building? When the Indians, in bow-shooting, draw the arrow towards the ear (see p. 63), and then find that the arm trembles, they jab a bone awl into the arm. It may be wondered if, on those occasions, they make use of the above-mentioned awls made from ulnæ of powerful feline animals, or raptorial birds? When feeling tired after a long march, for instance, the Indians give themselves a prick in the leg. Is it then that bone awls made out of canon bones of young deer are put into use?

It would be very interesting to learn from what animals the material of other bone awls from the Chaco peoples, kept at Swedish and foreign museums, have been taken. It is only by extensive examination in this

[1] The awls are marked B. 393, B. 395, C. 248 (2462), D. 1214, D. 1220, D. 1221 and D. 1222.
[2] Letter dated Sept. 14. Rockstad collection of Manuscripts, Volume 1921, Letter L.
[3] Nordenskiöld (13), p. 49. Italics by von Rosen.

1: Rosen E-5 (1901-1902) 1924 SK6 Choroti SK6

way, *and by renewed research among the Indians*, that we shall be enabled to obtain a thorough knowledge of their conception of magic blood-letting by means of awls. 757 412

In the foregoing I have mentioned that Choroti bow-staves are sometimes provided with a small skin casing, slipped on, and that on opening one of these casings I found that it contained excrements from some herbivorous animal. It is of course impossible to tell with certainty what the motive was for putting on this skin casing (see pp. 88 and 89), but I think it probable that it was put on the bow for some magic reason. It is noteworthy that it contained excrement. The fact of this being so is a circumstance that, in my opinion, especially points to the casing being of a magical character, for, according to the Chaco Indians' way of thinking, certain excrements possess magic properties and are often made use of in casting spells.[1] 789 411 825

All kinds of illnesses are by the Choroti considered to be caused by evil spirits. As yet, however, we know but little of these Indians' conception of the character and curing of different illnesses. Once Nordenskiöld called in medical aid from a medicine man among the Choroti, and this is how he describes the way in which the medicine man set about it: 753

'On many occasions, in the villages, I have seen the medicine men practising their profession. One day, among the Choroti, when I was feeling a bit seedy, I called one of those gentry to my camp. Giving out that I had a severe pain in the lower part of my chest, I asked him if he cared to cure me. He promised to come to me in the evening. At nightfall he arrived, accompanied by a colleague. They insisted on being left alone with me. Moberg and Andersson were consequently turned out, and sentries were posted so as to prevent anyone unauthorized gaining access to the hut. For a start, they made me strip to the skin, and then lie down. They stroked me with their hands over the chest, the sides of my body and the stomach, and then they spat on me. After that, they set to blowing on me, and then they laid themselves down and sucked hard at my chest, in particular at the spot where I had complained of the pain. After having sucked for a while, they turned away and pretended to vomit. Whatever they vomited up in this way, they did not show me, but, as they squeezed it between their fingers, it looked as if they had been squeezing worms. This performance lasted, I think, the 755

[1] See, for example, Nordenskiöld (13), pp. 95 and 98.

2: Nordenskiöld E-5 (1908-1909)1919
SK6 Choroti SK6
Ashluslay SK5

duster we may conclude that it is one of the cultural elements that the Chaco Indians have received from the mountain culture. I have in my private collection a beautiful bronze knuckle-duster which, on somewhat uncertain authority, is said to have been found in the district of Lima (A). In the Museum of Ethnology at Berlin there is a wooden knuckle-duster found on the coast of N. Chile (B). LEHMANN-NITSCHE[1]) gives a drawing of an object from an old grave in the Puna de Jujuy (D) which appears to me to be a knuckle-duster of this kind.

Throughout the N.W. Argentine (E) numerous bronze knuckle-dusters have been found[2]). LATCHAM[3]) gives drawings of some from Sta. Maria (z) in N. Chile. BOMAN[4]) also mentions a knuckle-duster, found near Taltal (z) in Chile. The same author gives particulars of a knuckle-duster found at San Juan (F) in the Argentine. This, like those found in Chile, is of bronze. COBO[5]) and ACOSTA[6]) instance knuckle-dusters from the Incas (18), used in certain religious ceremonies.

The distribution of the knuckle-duster is, as we see, very similar to that of the spade, though less extended.

The *bone-dagger*, too, is a rare weapon in S. America. We find it in the Chaco among the Choroti and Ashluslay. Besides this, it is only known from the Bororó[7]), from the district of Chuquimayo in N. Peru[8]) and from the extreme S. of Chile[9]). I have counted the bone dagger among the

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[1]) Pl. 3, fig. 38.
[2]) BOMAN, p. 136, LAFONE QUEVEDO (2), p. 285, AMBROSETTI (3), p. 250.
[3]) (2) p. 44, fig. 7—8.
[4]) p. 136.
[5]) Vol. 4. p. 86.
[6]) Lib. V. Cap. IV.
[7]) PRIČ a. RADIN Pl. 30, fig. 13.
[8]) PALOMINO, p. 141.
[9]) MEDINA, p. 138.

2: Nordenskiöld E-5 (1908-1909)1919
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Ashluslay SK5

XI.

Tools.

A
C
412 In the interior of the Chaco there are, as we have already pointed out, no stones at all. Consequently the Ashluslay and the Choroti have no stone tools, their primitive tools being made exclusively of bone, teeth, shells, and hard wood.

As knives they use the sharp-toothed *jaw of the palometa* (round pompano). These knives are used by the Indians of S. America whereever these fish occur, and where the Indians still use primitive tools. Thus, KARL V. D. STEINEN mentions them for the Indians of the upper R. Xingú.

Bone awls are in general use among the Ashluslay and the Choroti, though rather as bleeding instruments than as tools. The bone awl belongs to the objects whose distribution is very difficult to study, as it soon goes out of use when the Indians have obtained iron from the whites. I have seen it, apart from among the above tribes, among the Yuracáre, Chiriguano, Tapiete, Mataco and Toba. A special kind of bone awl is used by the Choroti and the Ashluslay for removing sand fleas (chigoes). I have not seen them elsewhere. [767]

Pieces of shell are used by the Choroti and the Ashluslay as scrapers. It is, of course, impossible to draw up a map of the distribution of such tools.

Very characteristic of the Indians of the stoneless Chaco, the Choroti, Ashluslay, Tapiete, Lengua[1]) and Mataco,

[1]) Grubb, p. 75.

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A C 412 are their knives, saws or scrapers and awls of very hard wood. The knives (fig. 12) are used, for instance, for cutting up fish and fruit, the saws for cutting off caraguatá boughs and for grating the «Mandioca del campo» (manioc). Such tools of wood are unknown among now living Indians, save in the Chaco. Occasionally flat bone knives are seen. I have seen them among the Tapiete and the Atsahuaca, as well as among the Choroti, and the Ashluslay. The wooden tools were originally made in this way: when there had been a

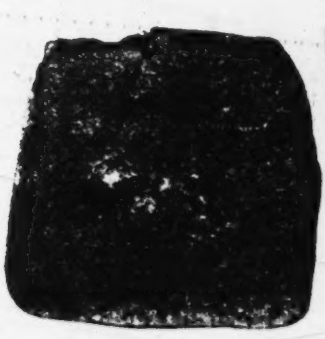

Fig. 13. Iron Knife, Choroti. G. M. (D. 1027) 1/3.

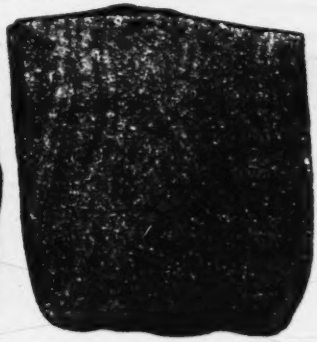

Fig. 12. Wooden Knife. Choroti G. M. (D. 1025) 1/2.

forest fire, suitable pieces of wood were selected, which were then shaped by means of the fire and pieces of shell. They are now cut by knives obtained from the whites.

A C [439] By their migrations to the sugar factories in the Argentine, the Chaco Indians have obtained many iron tools. Where iron is still rare, all the pieces of iron are preserved that can be utilized. In Fig. 13 is shown a piece of iron used as a knife, it having received a shape similar to that of the original wooden knives.

The *wooden knives*, as we have seen, are of a square shape. This shape may possibly not have originated in the Chaco. I have found similar stone knives (Fig. 14) in my excavations

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in a burial ground in Caipipendi in the Chiriguano territory, and BAESSLER[1]) found knives of similar shape, now of stone, now of a copper alloy at Chancay on the Peruvian coast. Bronze knives of this type are also mentioned by LATCHAM[2]), from Caldera in Chile and AMBROSETTI from N. Argentine[3]). I found a bronze knife of this kind at Quiaca in Peru[4]). The knives discovered during archaeological excavations are broader than the wooden ones now in use in the Gran Chaco. Owing to the resemblance in shape that exists between the wooden knives in the Chaco, the stone knives of Caipipendi and the stone and copper or bronze ones from the culture zone in the west, I consider this form of knife, for the present at least, to belong to the cultural elements which reached the Chaco from the culture of the mountains.

Fig. 14. Stone knife, found at Caipipendi in Bolivia. R. M. (K. 101) 1/4.

The *toothed scraper* also seems to be (Fig. 15) a western cultural element. AMBROSETTI[5]) depicts and describes some from La Paya, and assumes that they were used as carding-tools. Very possibly they had a different use in the Chaco from what came under my notice. AMBROSETTI

a. b.

Fig 15. Toothed scrapers of wood. Ashluslay, a — G. M. (B. 247) b — G. M. (B. 233) 1/4.

[1]) p. 41, fig. 71—75.
[2]) (2), p. 171, fig. 5.
[3]) (3), p. 103.
[4]) NORDENSKIOLD (3) Pl. 2, fig. 21.
[5]) (6) Vol. 2. p. 483. fig. 251.

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SK6 Choroti SK6
Ashluslay SK5

found them in four female graves and in a child's grave. Three of AMBROSETTI's «saws» are adorned with carved human heads. I found a similar object of stone (Fig. 16) which may have been used in this way, at Caipipendi in the Chiriguano territory.

Wooden awls, which I only know from the Chaco, are used by the Choroti and Ashluslay for letting blood.

Fig. 16. Toothed stone scraper. Caipipendi, Bolivia. R. M. (K. 194) 1/1

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Ashlustay SK5

XIV.

Utensils used in preparing and consuming Food.

a). *Utensils for preparing flour.*

The Chaco Indians here dealt with understand how to prepare flour, as most of the Indians do. For this purpose they use small wooden mortars with pestles of the same material. Occasionally the Ashluslay quite simply use a pit in the ground as a mortar.

Two ways of grinding corn may be said to exist in S. America, in one the corn being crushed in a mortar, while in the other it is ground between stones or between a stone and a wooden block. The distribution of the two methods may be seen from the following table.

No. on the map.	*Tribes which use wooden mortars.* (See Map 10).
61, 48.	Tribes on the R. Negro, R. Yapura and R. Içá, KOCH-GRÜNBERG (2); WHIFFEN[1]), p. 141.
64.	Huari.
40.	Guarayú, Guarayos.
28.	Bakaïrí, STEINEN (3), p. 363.
90.	Chipaya, SNETHLAGE, p. 94.
15.	Kayapó, KRAUSE, p. 388.
13.	Karajá, KRAUSE, p. 254.
50.	Šavajé, KRAUSE, p. 358.
4.	Chiriguano.
21.	Caingúa, OUTES Y BRUCH (5) p. 95.
3.	Tapiete.

[1]) According to WHIFFEN the mortar is only used for pulverizing coca leaves.

2: Nordenskiöld E-5 (1908-1909) 1919
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Ashluslay SK5

with stones in wooden troughs, or on wooden blocks, or with wooden blocks in wooden troughs.

Both the Choroti and the Ashluslay sift the corn through a net, and not therefore through a sieve specially made for the purpose. Of the tribes I got to know on my travels, the Toba, Mataco and Tapiete generally employ this method. All the others[1]) used baskets. The latter include the Chiriguano and Chané.

Pockets are also used for sifting. Honey is strained by the Ashluslay through a specially prepared straining cloth of Caraguatá.

As I have mentioned, the Ashluslay cultivate manioc. So do the Choroti, and probably some of the Mataco Indians. The cultivation of manioc must have reached the Chaco from the north or east. The boards used for rubbing the manioc root, are usual among the Ashluslay and Choroti Indians. These boards, which consist of a piece of palmwood into which numerous splinters of wood have been driven, clearly belong to the cultural elements that the Chaco Indians obtained from the north or east. Among a few tribes in N.E. Bolivia a prickly root of a palm is simply used as a grater, these natural graters probably representing the original type. In some districts sharp splinters of stone, instead of wooden splinters, are driven into the grating board.

Fig. 19. Manioc-Grater, Ashluslay. G. M. (A. 1662) 1/3.

I. The following tribes use a prickly root of a palm as a grater: (62) Chacobo, (22) Yuracáre, (63) Yamiaca and (X) Yurúna.[2])

[1]) With the possible exception of the Huari.

[2]) KLETKE, p. 683.

2: Nordenskiöld E-5 (1908-1909)1919
SK6 Choroti SK6
Ashluslay. SK5

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II. The following tribes use a board into which wooden splinters have been driven:

A C [252 418]

(2) Ashluslay (Fig. 19), (1) Choroti, (28) Bakaïrí[1]) and Suyá[1b]), (XI) Yamamadi[2]), (13) Karajá[3]), (61) Boro, Vitóto, and other tribes between the R. Putumayo and the R. Yapurá[4]) (IX) Colorados[5]) and (5C) Nambiquara.[6])

III. The following tribes use a board with stone splinters driven into it: (38) Tupinambá[7]), (74) Sáliva and other tribes on the R. Orinoco[8]), (47) Patamona, Macusi, Arecuna and other tribes in Guayana[9]), (48) Sinsí and other tribes in N.W. Brazil.[10]), (V 2) Indians on the R. Guainia[11]), (V 5) Makiritare[12]), (55) Kalina[13]), (31) Trio[14]) (V 5) Yekuaná and Guinaú on the upper R. Ventuarí and R. Merewarí.[15])

IV. Without specification of the material: (20) Paressi-Kabiši[16]) and (V 3) Caripon at Yapoco[17]).

The (59) Chrichana[18]) have grating-boards with teeth instead of stones. The Waika[19]) use rough slabs of granite

[1]) v. d. Steinen (2) p. 124.

[1b]) do. p. 206. Not marked on the map.

[2]) Rio Purus, Ehrenreich (2) p. 55 »Palm wood spikes.«

[3]) Krause p. 254. Spikes of »Prejauva wood«.

[4]) Whiffen, p. 141. Palm spikes.

[5]) Rivet (3), p. 101.

[6]) Roquette-Pinto (2), p. 185.

[7]) Lery, p. 110. Thevet, p. 302.

[8]) Gilij, Vol. 2, p. 304. fig.

[9]) Im Thurn, p. 200, Museum Material G. M. etc.

[10]) Koch-Grünberg (2) Vol. 1. p. 77 seq. Vol. 2. p. 205.

[11]) Ernst, p. 527.

[12]) Ernst p. 528, Krickeberg, p. 89. fig. 6.

[13]) Ten Kate, p. 3.

[14]) Goeje (2) p. 5.

[15]) Koch-Grünberg (communicated by letter).

[16]) Max Schmidt (4) p. 206.

[17]) »rapent sur vne pierre ou sur n bois falct en facon de lime«. Mocquet, p. 83. »Ce pays d'Yapoco est à plus de 120 lieues du pays des Toupinambous.« Mocquet, p. 89.

[18]) Barbosa Rodrigues p. 131.

[19]) Koch-Grünberg (4), p. 200.

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SK6 Choroti SK6
Ashluslay SK5

originally from the mountain area of civilization, as FRÖDIN and myself have endeavoured to show. I shall return to this problem later on.

The spindles of the Choroti and Ashluslay are, as was mentioned, provided at the upper end with a knob round which the wool to be spun is fastened. This invention does not seem to be a product of the mountain civilization, but to have been one of the few elements of civilization which the Indians of the Chaco have received from the northern and western parts of S. America. Probably it came to the Chaco with the Guarani Indians, since the Arawaks at Mojos north of the Chaco have spindles of the Bororó type. It is indicated on the map which tribes in S. America have spindles of this kind. There are some S. American tribes whose spindles are provided with a hook instead of a knob at the upper end.

Sewing, or the use of the eyed needle.

The Indians of the Chaco have plainly learnt the use of the eyed needle from people of the the n ountain civilization. RIVET and VERNEAU[1]) have given a summary of the places where eyed needles have been found in archaeological excavations. From this it appears that, previous to its introduction by the whites, the eyed needle in America had a markedly western distribution. (Map 36). RIVET and VERNEAU mention the following places where metal needles have been found: — Neighbourhood of Cañaris, Ecuador, Piura, Chuquitanta, Marquez, Ancon, Paumalca (valle de Chiclayo), Trujillo, Huadquiña and Choquequirao in Peru (K, A), (I) Tialhuanaco, (I) Titicaca Island, (G) Queara, (Z) Tocarji and (Z) Asnapújio[2]) in Bolivia, (D) Casabindo, (E) Santa Maria, (E) La Loma (not far from Puerta del Belen) in Argentina. Rivet and VERNEAU[3]) quote, furthermore the following places for bone needles: — (L) Cañar (Ecuador), (E) La Paya (N.

[1]) (4) p. 284.

[2]) Only a few of these places are shown on the map.

[3]) (4) p. 252.

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SK6 Choroti SK6
Ashluslay SK5

Argentina) and (H) Neighbourhood of Buenos Aires. Wooden needles have been found at (D) Casabindo and (D) Sayate in the Puna de Jujuy, at (C) Calama in the Puna de Atacama[1]) and at (B) Arica[2]). I have found[3]) wooden needles in a grave in a cave at (G) Quearatal in Bolivia and at (G) Corani in Peru.

At (B) Arica UHLE[4]) found large needles of wood and smaller ones of thorn. REISS and STÜBEL[5]) depict a sewing-needle «out of a large thorn» from Arica.

Among the Indians whom I have visited on my travels the (1) Choroti, (2) Ashluslay, (6) Mataco, (7) Toba and (3) Tapiete use home-made needles. These are made of bones, wood or the thorns of a plant. CREVAUX[6]) mentions bone-needles from (31) Roucoyenne (Ojana), and KRAUSE[7]) found them among the (13) Karajá. I have seen a bone-needle from the (30) Guayaki in the Museum of Ethnology at Berlin. KOCH-GRÜNBERG mentions bone-needles from the (48) Káua on the Rio Aiarý[8]) and the (48) Kobéua on the Rio Cuduiarý[9]); ARMENTIA[10]) from the (49) Araona. K. v. d. STEINEN found no eyed needles among the Indians on the Rio Xingú. From the Mehinakú, one of the Xingú tribes, RADIN[11]) mentions needles consisting of two light, thin pieces of wood held together by very fine fibres. At the upper end a slit is left open.

[1]) BOMAN, p. 508.
[2]) EWBANK, Pl. 10, fig. 6.
[3]) NORDENSKIÖLD (3), p. 18 and 34.
[4]) (6) p. 12.
[5]) Vol. 3, Pl. 83, fig. 13.
[6]) p. 202.
[7]) p. 206.
[8]) (2) Vol. 1, p. 117.
[9]) (2) Vol. 2, p. 169.
[10]) p. 61.
[11]) p. 932.